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ABSTRACT

This paper reports on an investigation of study strategies of 514 college freshmen at Murray State University (Kentucky) enrolled in a Freshman Orientation class. A demographic questionnaire and the Learning and Study Strategies Inventory (LASSI) were administered. Responses on the LASSI are categorized into ten subscales (attitude, motivation, time management, anxiety, concentration, information processing, selecting main ideas, study aids, self-testing, and test strategies). Findings indicated that: (1) relatively few (24%) reported receiving any training in the use of learning strategies; (2) students reported using learning and study strategies at a lower level than the inventory's norming group; (3) students who used such strategies (especially in the areas of motivation, concentration and test taking) demonstrated higher grades at the end of their freshman year; (4) students who scored lower on such subscales as attitude, time management, and anxiety found college to be more difficult; (5) those who reported studying more in high school used more of the learning and study strategies; (6) students who reported using more of the strategies also perceived themselves to be more skillful and knowledgeable in the task of learning; and (7) there was no significant difference in strategy use by students who had attended rural as opposed to urban high schools. Eight references. (DB)

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The Use of Learning and Study Strategies by College Freshmen

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Learning and Study Strategies of College Freshmen

Over the past ten years, researchers in the areas of cognitive psychology and reading have been keenly interested in determining the learning and study strategies employed by students. As defined by Mayer (1988), learning strategies are behaviors that are intended to influence how the learner processes information. Metacognitive factors such as comprehension monitoring, concentration, and motivation influence the way in which we learn and retain information. Specific study strategies (i.e, notetaking, underlining in text, summarizing) have also been found to influence students' ability to succeed in academic endeavors.

The extensive work in the area of metacognition (i.e., Baker and Brown, 1981; Garner, 1985) reflects the shift in research from the skill-oriented training studies of the past to an emphasis on learning more about the repertoire of learning and study strategies used by students. Thus, the purposes of most research studies have involved the determination of effective learning strategies, the validation of the effectiveness of learning strategies in actual learning situations, and the generalizability of learning strategies for students of various ages or abilities (Weinstein & Mayer, 1985).

Current research has demonstrated that instruction in the use of learning strategies is one way to influence the manner in which students process new information and acquire new skills (e.g., Dansereau, 1985; Weinstein, 1978, and Wittrock, 1985). Until recently, however, the issue of independent learning strategies has received little attention (Higginson, 1987). A small body of research is emerging in the area of independent learning strategies and results

from these studies suggest that high school and college students have one general study strategy regardless of the content being studied (Higginson, 1985; Pace, Sherk, Peck, and Baldwin, 1985; Simpson, 1984). However, prior investigations of independent learning strategies have been subjected to criticisms because the vast majority of data collection instruments have been developed by the researchers. The lack of validity and reliability data on these instruments, coupled with the inconsistent definitions of learning and study strategies has caused concern among researchers.

The majority of high school students who enroll in our colleges and universities confront a totally new set of rules and expectations about independent learning from text. Some will survive this difficult transition because they have learned the more mature study strategies that allow them to analyze and define an assigned learning task, to plan, select and employ the most effective strategies, and to monitor and check a strategy's effectiveness in terms of the specified task (Simpson, 1984). Many students, however, will struggle and sometimes fail needlessly in their first attempts at independent learning. College instructors and student support personnel need to understand the learning and study strategies of students in order to begin to take steps to assist them in becoming self-sufficient, independent learners. The purpose of this paper is to facilitate this understanding by reporting the results of a research study conducted with college freshmen at Murray State University. Implications from the study will be discussed as they relate to the concerns of university faculty, developmental studies personnel, and other academic support services professionals.

Method

Subjects

Subjects for the study were 514 college freshmen enrolled in one of four sections of "Freshmen Orientation", a required class designed to acquaint new students with the university and with degree requirements in their particular academic major. Most of the subjects were traditional students; that is, the majority were 18 years old (78%) and unmarried (93%). Females composed 60% of the sample; males 40%.

Materials

Two instruments were used for data collection. The first was a questionnaire developed by the researchers for the purpose of obtaining demographic information about the subjects. The 19-item questionnaire requested that subjects respond to basic questions such as marital status, academic major, and age. Several items pertained to issues related to subjects' experiences with studying and learning strategies (i.e., amount of studying done in high school, perceived difficulty of college).

The second instrument was the Learning and Study Strategies Inventory (LASSI; 1987) developed by Weinstein, Palmer and Schulte. The 77-item inventory is an assessment tool designed to measure students' use of learning and study strategies. The LASSI is a self-report instrument to which students respond on a five point Likert scale of "very typical of me" to "not at all typical of me". Statements such as "I feel confused and undecided as to what my educational goals should be", "I stop periodically while reading and mentally go over or review what was said", and "I find it hard to

stick to a study schedule" are examples of LASSI items. Responses are categorized into ten subscales (attitude, motivation, time management, anxiety, concentration, information processing, selecting main ideas, study aids, self testing, and test strategies). Scores on these subscales can be compared with percentile score equivalents provided with the instrument.

Procedure

Data were collected during the first half of the fall, 1988 semester. Subjects were enrolled in one of four Freshmen Orientation classes (business, education, social work, and undeclared). Subjects were assured of anonymity and participated willingly. Approximately 30 minutes were needed to collect the date in each of the four classes.

RESULTS

The sample of college freshmen were asked if they had ever received any training in the use of learning and study strategies prior to beginning college. Table 1 shows that relatively few of the freshmen indicated they had ever been trained in any way in the intentional use of learning strategies.

(Insert Table 1 about here)

The 24% of the sample who had some training in the use of learning strategies reported that the training they had received was minimal. Fourteen percent had received some training as a part of a class. The 6% who indicated they had an entire class on learning and study strategies appear to be composed at least partly of students from the Upward Bound Program which had offered a class for the students during the summer prior to their entering college.

The primary research question of interest was "To what extent do college freshmen report using the learning strategies which are widely believed to enhance learning?" The authors' prediction was confirmed that few of the college freshmen appeared to be familiar with and to systematically use learning strategies (See Table 1). The results from the administration of the LASSI shown in Table 2 indicate the freshmen in the sample reported using the learning and study strategies at a fairly low level when compared to the norming group. The group used to establish the norms for the LASSI was a group of college freshmen from the University of Texas-Austin. The freshmen at the University of Texas-Austin are a select group since admission standards are high. The sample of students in the current study were typical college students with an average ACT of approximately 19.5. This difference may account for some of the variance in the substantially lower scores on the LASSI; however, it seems unlikely to account for the great differences in the reported use of the learning strategies.

(INSERT TABLE 2 ABOUT HERE)

Clearly, many of the freshmen in the present sample reported using few of the learning strategies and using them rather infrequently.

While the degree to which college freshmen report using learning and study strategies is of interest, the belief that the use of learning and study strategies will enhance learning and, consequently, the students' achievement is of primary concern. Therefore, it is important to identify whether those students who report a high level of using learning and study strategies actually achieve higher grades

than those who do not use as many of the strategies.

Table 3 examines the differences in the means of LASSI scores for each scale by high and low achieving subgroups of the freshmen sample. An analysis of variance was computed using as the independent variable two groupings of students by their accumulated freshmen year grades: high grade point average (above a 2.75 on a 4 point scale) and low grade point average (below 2.00 on a point scale). Each of the ten scales on the LASSI were used as dependent variables.

(INSERT TABLE 3 ABOUT HERE)

As can be seen in Table 3, there were significant differences found in the use of six of the strategies by those who achieved higher and lowered grades at the end of their freshmen year in college. All differences in the means were in the predicted direction. Those who achieved higher grades reported using the strategies significantly more than those who achieved lower grades.

This result would lend support to the belief that those students who use more of the learning and study strategies more frequently will tend to be more successful in learning as determined by the grades they receive.

The freshmen in the current sample were asked about several specific attitudes and behaviors which were thought to relate to the use of learning and study strategies. They were asked how difficult they had found college to be at that point in their first semester; were asked how much they had studied while they were in high school; and were asked how skilled they felt they were in using learning strategies.

It was predicted that those who were finding college to be more difficult would score lower on the LASSI scales. Respondents to the question concerning how difficult they had found college to be at that time were split into high and a low difficulty groups. Table 4 displays the results of analysis of variance using the groups as the independent variable and the scales of the LASSI as the dependent variables found support for the hypothesis on six of the LASSI scales (attitude, time management, anxiety, concentration, select main ideas, and testing skills). Those who scored lower on these six scales indicating that they did not use these strategies much found college to be more difficult.

(Insert Table 4 About Here)

It was also predicted that those who studied more in high school would score higher on the LASSI scales. Respondents were split into two groups, those who reported studying a considerable amount in high school and those who reported studying very little in high school. Table 5 reports the results of analysis of variance using the two groups as the independent variable and the LASSI scales as the dependent variables found significant differences on five of the LASSI scales (attitude, time management, motivation, concentration, and test skills). All differences were in the predicted direction indicating those who reported studying more in high school used more of the learning and study strategies.

(Insert Table 5 About Here)

While the LASSI is a self report instrument and has inherent limitations in this regard, the fact that the data were being gathered by researchers whom the students did not know and the responses were not to be seen by any professor should have substantially reduced the subjects' inclination to respond to the items dishonestly.

Assuming that students were responding truthfully in most cases to the LASSI instrument, another question of interest was whether those who scored higher on the LASSI scales generally perceived that they were more skillful and knowledgeable in the use of learning and study strategies. Respondents to the question concerning their perceived level of skill and knowledge in the use of learning and study strategies were split into high and low groups. Table 6 displays the results of an analysis of variance using the high and low groups as the independent variable and the LASSI scores as the dependent variables. The results show there was a significant difference in the mean scores of those who perceived themselves as having high skill levels and those perceiving themselves as having low skill levels in knowing about and using learning and study strategies on all 10 of the LASSI scales. Those students who reported using more of the learning and study strategies perceived themselves to be more skillful and knowledgeable in the overall task of learning.

(Insert Table 6 About Here)

One additional question which was of interest was whether there was a difference in the learning and study strategies used by those students who attended high school in small rural schools and those who attended high school in larger more urban schools. An analysis of variance found no significant differences in the levels of strategies used by these different groups.

Discussion

While the results of the present study may not surprise those who teach and advise college freshmen, several important conclusions may be drawn. First, the results suggest that those students who use learning strategies are more successful in terms of grade point average than those who are not aware of learning strategies or who use such strategies infrequently. In the present sample of college students, it can be seen that there is a consistent positive relationship between the greater use of learning strategies and higher grade point averages. This effect appears to be greatest in the areas of motivation, concentration and test taking strategies. These data suggest that it may be appropriate to focus training efforts on these particular variables. Those who teach in developmental studies programs should seek ways to enhance student motivation, improve their concentration, and teach specific strategies for test preparation.

The level of perceived confidence and success with college courses appears to impact on students' use of learning and study strategies. Helping students to understand this relationship and teaching them thinking strategies to enhance self-concept and feelings of self-efficacy may contribute to improved performance in college classes.

In conclusion, the present study provides researchers with an overview of the naturally-occurring learning and study behaviors of college freshmen. Research which deals with the effect of training students in a particular area (i.e., motivation) may provide insights into the variables which have the greatest impact on students' achievement. Certainly, the ten subscales on the LASSI are not discrete variables; rather, some probably influence several others.

While additional reserach is needed in all areas of learning and study strategies one specific area concerns LASSI scores over a period of time. For example, which variables change from the freshmen year to the sophomore year? Do students scores change significantly from high school to college? Which of the variables seem to remain fairly constant and, moreover, which suggest the greatest instructional need? These and other questions should be addressed by researchers in an effort to improve retention of college freshmen and to impact instructional practices, especially in developmental studies programs.

Table 1

Have you ever received training in study skills?

Yes	24%
No	76%

If you have received training in study skills, what was the nature of the training?

a one-time presentation outside of class	4%
a part of a class	14%
an entire class	6%

Table 2

Learning and Study Strategies Inventory Scores
for Sample of College Freshmen

Scales	Mean Scores	Percentiles
Attitude	30.0	35
Motivation	28.5	30
Time Management	22.6	45
Anxiety	22.4	32
Concentration	24.2	45
Information Processing	24.6	37
Selecting Main Ideas	17.1	40
Study Aids	22.9	39
Self Testing	24.5	45
Test Strategies	26.9	29

Table 3

LASSI Group Means for Students with High and Low Freshmen Year Grade Point Average

Scale	Low GPA	High GPA	Significance Level
Attitude	28.6	30.1	$p < .05$
Motivation	27.0	29.5	$p < .01$
Time Management	22.5	22.4	NS
Anxiety	21.4	22.9	$p < .05$
Concentration	23.0	24.3	$p < .05$
Information Processing	23.5	25.1	$p < .01$
Select Main Ideas	16.7	17.2	NS
Using Study Aids	22.4	23.1	NS
Self Testing	23.8	24.6	NS
Test Taking Skills	25.5	27.3	$p < .01$

Table 4

LASSI Group Means for Students Reporting
High or Low Difficulty with College Academic Work

Scale	Low Difficulty With College	High Difficulty With College	Significance Level
Attitude	31.2	29.0	$p < .01$
Motivation	29.0	28.1	NS
Time Management	24.1	21.9	$p < .01$
Anxiety	25.8	19.5	$p < .001$
Concentration	25.5	23.0	$p < .01$
Information processing	24.6	24.3	NS
Select Main Ideas	18.3	16.1	$p < .01$
Using Study Aids	23.1	22.5	NS
Self Testing	25.2	24.1	NS
Test Taking Skills	29.6	25.0	$p < .001$

Table 5

LASSI Group Means for Students Reporting
Having Studied Very Much or Very Little in High School

Scale	Studied Very Little	Studied Very Much	Significance Level
Attitude	29.7	31.6	$p < .05$
Motivation	28.0	32.3	$p < .01$
Time Management	21.7	24.9	$p < .01$
Anxiety	22.2	23.5	NS
Concentration	23.6	25.8	$p < .05$
Information Processing			
Select Main Ideas	16.9	18.0	NS
Using Study Aids	22.6	23.6	NS
Self Testing	24.2	26.2	$p < .05$
Test Taking Skills	26.5	29.4	$p < .01$

Table 6

LASSI Group Means for Students Who Perceive
They Have High and Low Levels of Learning Skills

Scale	High Learning Skills	Low Learning Skills	Significance Level
Attitude	31.7	29.2	$p < .01$
Motivation	30.4	26.1	$p < .001$
Time Management	24.9	20.0	$p < .001$
Anxiety	25.0	20.2	$p < .001$
Concentration	26.6	21.4	$p < .001$
Information Processing	25.6	23.4	$p < .01$
Select Main Ideas	18.8	15.6	$p < .001$
Using Study Aids	24.0	21.4	$p < .001$
Self Testing	26.2	22.8	$p < .001$
Test Taking Skills	29.5	24.7	$p < .01$

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